# DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee*
*Owned and Published by the Medical Society of Delaware*

VOLUME 16
NUMBER 8

AUGUST, 1944

Per Copy, 20c
Per Year, $2.00


## MORBIDITY AND POPULATION TRENDS


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At a time when social security and medical care is being discussed widely it might be well to examine some of the implications of the changing status of our population.

Wars, epidemics, depressions, periods of prosperity, and cultural advances and regressions have all played their various parts in the always changing pattern of our civilization. The purely agrarian population required large families in order to help till the soil. As the population became urban these large families became liabilities rather than assets. This has contributed to a steady decline in the birth rate. In the United States the average number of births per white woman living through the childbearing period declined from 7.8 in 1800 to 2.3 in 1940. In the U. S. Registration Area the birth rates have been as follows:

| | |
|---|---|
| 1915 | 25.1 |
| 1920 | 23.7 |
| 1925 | 21.5 |
| 1930 | 18.9 |
| 1935 | 17.0 |
| 1940 | 17.9 |
| 1942 | 21.0 |
| (Del. 1943 | 22.9) |

Meanwhile, there has been a decided change within the population itself. For local interest these changes can be confined to Delaware. Below will be found a table representing the percent compositions by three major age groups from 1900-1940:

| | Under 20 | 20-44 | 45 and Over |
|---|---|---|---|
| 1900 | 41.0 | 38.4 | 20.6 |
| 1910 | 41.0 | 35.3 | 23.5 |
| 1920 | 37.2 | 38.8 | 23.9 |
| 1930 | 35.9 | 37.9 | 26.2 |
| 1940 | 31.4 | 40.2 | 28.4 |

If the rate of change as established from 1900-1940 is applied to the next four decades, the composition of the population would appear like this:

| | Under 20 | 20-44 | 45 and Over |
|---|---|---|---|
| 1950 | 29.0 | 40.6 | 30.4 |
| 1960 | 26.6 | 41.1 | 32.3 |
| 1970 | 24.2 | 41.6 | 34.2 |
| 1980 | 21.8 | 42.0 | 36.2 |

These projections are simply mathematical, but nevertheless indicate a trend provided the experience of the past four decades will continue to obtain, and there is nothing to indicate that it will not.

Meanwhile the expectancy of life at birth has advanced from 46.6 years in 1910 to 64.3 years in 1941—advances of 4.5, 6.3 and 6.9 years for each respective decade. The average advance over the period is 5.9 years, and which if continued would give an expectation of life of 87.9 years in 1980.

From the standpoint of health, the change in composition of the population will be of greater importance than the change in total numbers. It is estimated that between 1940 and 1980 there will be a total growth of about 21 million and a decline of 6 million in the age group under 19. During the same period, however, it is estimated that the population over 44 will increase by 27 million and that there will be approximately two and a half times as many persons over 65 in 1980 than in 1940!

It is reasonable to assume that during the period in which those changes are taking place, many advances in medicine will take place. Without any advances in medicine, the diseases of infancy and childhood would gradually assume a lessening importance, while those of later years would be of increasing significance.

The group from 20-44 will remain practically the same and will be subject to the same illness and accident risks as at present, or as health and living conditions improve and advances in medicine are made, this group may be better off than at present. From an economic viewpoint, however, this group will have to carry an increasing load because, while there will be a lessening of the


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dependency load in the group under 19 years, there will be an increasing load in the groups over 45.

The group 45 years and older is the one which suffers from the chronic diseases. In New York City in 1900 diseases of the heart ranked 4th place in the ten leading causes of death, with a rate of 112.0 per 100,000 population. In 1910 it had risen to 3rd place, with a rate of 143.6. By 1920 it had become the leading cause, with a rate of 213.2 and has maintained its position with rates of 256.0 and 355.2 for 1930 and 1940 respectively. Tuberculosis has dropped from 2nd place in 1910, with a rate of 236.8, to 5th place in 1940, with a rate of 48.6. However, cancer has advanced from 7th place in 1910, with a rate of 66.5, to 2nd place in 1940, with a rate of 164.8.

To return to Delaware, heart disease as a cause of death increased from a rate of 189.5 in 1916 to one of 376.3 in 1942. However, the mean length of life of those dying from heart disease increased from 59.8 years to 68.2 years over the same period. This increase in mean age corresponds very well with the increase in life expectancy.

Tuberculosis, however, dropped from a rate of 200.2 in 1916 to one of 37.8 in 1943. Again the average age of death from tuberculosis rose from 33.4 to 41.5 years in the same period. During the years 1916-1940 the mortality rate for cancer increased from 68.8 to 129.1.

Just what effect the transitions noted here will have upon the public health and the private practice of medicine is difficult to predict. Undoubtedly the burden of caring for the chronically ill will be increased. The prolonged illnesses will affect more families than at the present, probably more families with fewer wage-earners. This burden alone indicates an increase in hospitalization, whether it be by existing institutions or an expansion of facilities by the state.

We have our existing Social Security benefits, but as the population over 45 increases, the collective earning power of this group will decrease as time goes on, which means that if any degree of old age benefits are to be continued they can only be provided at an increasing cost.

Physicians and nurses graduating in 1940 will be practicing in 1980. The pattern of medical education has been changing gradually, but this transition has been directed toward improved standards, while changing conditions may not have assumed their proper significance. How little we provide for the sufferers of our chronic diseases!

Preventive medicine has long since left its profound impression upon maternal and infant mortality and upon the mortality suffered in some of the acute communicable diseases through active and passive immunization. In these fields progress is still being made. However, in a society where children are becoming increasingly scarce and the diseases of childhood becoming less a problem, the diseases of middle and old age take on a far greater significance. It would therefore seem logical to focus more attention on the relief of chronic illnesses and to the pre-chronic conditions which are responsible for chronicity.

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## HIGH SCHOOL X-RAY SURVEY

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In the last thirty months millions of Americans, including thousands of Delawareans, have had their pictures taken. Men and women of the armed forces, industrial workers, teachers, food handlers and high school students in front of an xray machine and in less time than it takes to tell an xray picture was made of their lungs. Since Congress passed the Selective Service Act it is estimated at least twelve million xray pictures have been taken at the induction stations, resulting in 120,000 deferments for chest conditions. In round numbers, 10 persons are deferred for every 1,000 examined. The draft examination, together with xray surveys of different civilian groups, is the greatest campaign waged against tuberculosis in the history of the nation. Delaware was one

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of the pioneers in the xraying of selectees. Before the government provided xray equipment at the induction centers more than 2,000 Delaware selectees were xrayed at Brandywine sanatorium. This was a cooperative project of the Selective Service System of the state, the official health agencies, members of the medical profession, the staff of Brandywine Sanatorium, and the Delaware Anti-Tuberculosis Society. Soon after Pearl Harbor the Anti-tuberculosis Society began to adjust its program to fit in with the war picture, with particular emphasis upon the protection of civilian health on the home front. After searching inquiry into the various methods of mass xray surveys, and conferences with official health and educational officials of the state, the Board of Directors of the Delaware Anti-tuberculosis Society authorized the Executive Secretary to develop a survey in the high schools of the state, covering several years, assuring a chest xray to each high school student before graduation and to each school employee periodically. The project started last year in the Wilmington high schools, public and parochial. The result of this survey, totaling 7,501 xrays, appeared in the August, 1943, issue of THE JOURNAL.

In April and May of this year the service was made available to the high schools outside of Wilmington. Also included were the absentees from last year in the Wilmington schools. The Anti-tuberculosis Society again employed the services of the National Xray Surveys, Inc., of Orange, New Jersey, using the specially designed portable photo-roentgen 35 millimeter unit equipped with Zeiss lenses, developed exclusively for photo-roentgen work. From 400 to 600 xrays were taken each day. In the larger schools the equipment was set up for a half day or full day, depending upon the number of students to be xrayed. In the smaller schools the unit was set up in a population center and the students and school personnel from nearby schools transported by bus. The project was started in the vicinity of Wilmington on April 3rd at the Claymont Special District School. During the morning the Claymont personnel was xrayed, as well as the students and faculty members of Archmere Academy. In the afternoon the unit was moved to the Alexis I. DuPont School. During the balance of this week the following school groups were xrayed: Tower Hill, Henry C. Conrad, Friends, and absentees from the Wilmington high schools that did not receive the xray last year. On May 15th the unit, with one xray engineer and two technicians, started a two weeks trip to the various county schools, beginning at the Seaford Special District School. During these two weeks the following school groups participated in the survey: Laurel, Delmar, Georgetown, Milton, John M. Clayton, Lord Baltimore, Millsboro, Selbyville, Lewes, Rehoboth, Milford, Harrington, Felton, Greenwood, Dover, Caesar Rodney, Smyrna, Middletown, Newark and New Castle schools; state health department officials, state school officials, St. Andrew's School, Wesley Junior College, King's College, Women's College of the University of Delaware, State College for Colored Students, and residents of the Millside Housing Unit.

At the last annual meeting of the Board of Directors of the Delaware Anti-tuberculosis Society school officials stated that the survey, which was originally planned to include tenth, eleventh and twelfth grade students, in addition to all other personnel, missed a comparatively large percentage of students that terminate their school careers before entering senior high school. The fact was also brought out that the Society should give some consideration to the xraying of younger colored students, since the colored tuberculosis death rate in Delaware is approximately six times higher than the white. The Sussex County Medical Society recommended that in future surveys the Society include the xraying of colored students in the lower grades. Both suggestions are receiving the consideration of the Delaware Anti-tuberculosis Society.

When the xrays are taken, the films are sent to the laboratories of the National Xray Surveys, Inc., for development. They are then sent to the Brandywine Sanatorium for interpretation. Later stereoscopic xrays are taken of any suspicious or abnormal appearing cases for further study and diagnosis.

Below are the findings of the xrays taken this year, interpreted by the medical staff of

the Brandywine Sanatorium and the corresponding percentage from the 1943 Survey:

TOTAL NUMBER XRAYED .... 6,928

| | Total Number | 1944 Percent | 1943 Percent |
|---|---|---|---|
| Chest Findings: | | | |
| Hilum Deposits | 139 | 2. | 2.5 |
| Pul. Nodules .... | 268 | 3.87 | 3.0 |
| Pul. T. B., Minimal, Stable .... | 12 | .17 | .04 |
| Pul. T. B., Min., Unstable ..... | 3 | .04 | .04 |
| Pul. T. B., Mod. Adv., Stable .. | 3 | .04 | .013 |
| Pul. T. B., Mod. Adv., Unstable | 2 | .029 | .027 |
| Hilum Glands, Unstable ..... | 4 | .058 | .00 |
| Disseminated Calcium Deposits ..... | 16 | .23 | .013 |
| Probable Non-tuberculosis basal lesions ..... | 48 | .7 | .11 |
| Obliterated costophrenic angle | 13 | .19 | .05 |
| Irregularity of Diaphragm .... | 49 | .7 | .32 |
| Azygos Lobe .... | 8 | .12 | .15 |
| Pleural Thickening ..... | 3 | .04 | .03 |
| Cervical Rib or Ribs ..... | 35 | .5 | .45 |
| Bifurcated Ribs | 26 | .38 | .13 |
| Fusion of Ribs | 2 | .029 | .11 |
| Poorly Developed Ribs ..... | 23 | .3 | .17 |
| Old Fracture or Spur of Ribs | 5 | .07 | .05 |
| Spinal Curvature, including Pott's Disease | 11 | .16 | .19 |
| Enlarged Heart Shadow ..... | 17 | .25 | |
| Emphysema ..... | 8 | .12 | |
| Dextro-cardia .... | 2 | .029 | |

In tabulating the above findings only the apparent definite cases were included, as any blanks, blurred films or suspicious areas were omitted and deferred for follow-up by stereoscopic xray films or fluoroscopic examinations. This follow-up will probably add a few more cases to these totals.

In listing the findings the second infection type of tuberculosis was given precedence over all other findings. In the first infection type the pulmonary nodule, or nodules, was given precedence over any calcium deposits in the hilus so that of the pulmonary infections only the one tabulation was made according to the appearance of the type of infection.

As regards the extra-pulmonary structures, any abnormalities were listed as appeared evident on the films along with any pulmonary involvement. It will be noted from the above tables that the incidence of pathological findings is quite parallel in Wilmington and the rest of the state, particularly as regards the incidence of tuberculosis lesions.

The cost of finding an active pulmonary tuberculosis lesion was less than $400 per case, and in the future this cost per case can be reduced by including the xraying of smaller industries throughout the state at the time of the xray survey, as the larger state concerns have their own xray facilities.

## POST-WAR PLANNING IN THE PUBLIC HEALTH FIELD

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Some of the fundamental factors that have to do with urban development still are concerned with the primary services of water supply and sewerage. Despite statements to the contrary, there is still a great need for work to be done in servicing the outer fringes of many of our towns and cities, also the built-up urban areas which now rival in size many of our incorporated towns. The installation of water supply and sewerage facilities should concomitantly be followed by the continued prosecution of the effort to keep both sewage and industrial wastes out of our streams.

In addition to these fundamentals of modern living, there is still the need for improved housing which means the elimination of some entirely, the replacement of others by new units, and the giving of a new lease of life to others through certain repairs and alterations. These statements about housing apply not only to Wilmington and the Wilmington metropolitan area but apply also to many of our smaller towns and cities.

Coupled with the above is the problem of the control of mosquito breeding area. The latter concern is occasioned by the establishment of air bases in this State, and the fact that pests from all over the world may find a harbor here.

The four subjects, namely, water supply, sewerage, housing and mosquito control will be discussed briefly and as an appendix to this report will be found suggestions for post-

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war projects which the citizens in the various governmental units might consider worthwhile.

### WATER SUPPLY

The city of Wilmington, through Mr. W. Compton Wills, has prepared a list of proposed improvements which include extensions to the slow sand filter plant, the installation of approximately nine miles of water mains from 10 inches to 48 inches in diameter, the repair and replacement of pumps in the several pumping stations as well as other needed equipment. In addition to the projects listed by Mr. Wills there is always the possibility that this program can be enlarged by the installation of mains to serve built up communities outside the city limits. Some of this work has already been done by the Water Department but there is still room for additional extensions in several of the areas immediately adjacent to Wilmington.

The city of New Castle is considering the construction of an elevated steel tank as well as the start of a new water supply, the latter, due to the fact that salt water is now encroaching on the present well area. The city of Rehoboth is considering the construction of additional wells and moving to an entirely new area due to salt invasion. The town of Lewes is confronted with this same problem of salt invasion due principally to the new inlet to the Lewes-Rehoboth Canal. Plans are now being prepared for new wells at a new location further removed from the Delaware Bay.

The towns of Delaware City and Delmar, pending certain moves, will also augment the present supplies including treatment of the water and tying in the gridiron system.

The water supplies of this state are not particularly "hard," but quite a number do have high carbon dioxide and iron contents, both of which are highly destructive to piping, particularly manufacturing and household systems. This means a limiting of the life of such equipment which, expressed in dollars and cents, might well be equivalent to or more than the annual costs of treated water. In order to overcome these deficiencies and to make the several water supplies more palatable, several projects are suggested for several of the towns for the purpose of eliminating certain of these highly objectionable characteristics of the present supplies.

### SEWERAGE SYSTEMS

A report of proposed projects for the city of Wilmington has been prepared by Mr. Maier, Chief Engineer of the Street and Sewer Department. These projects call for servicing of certain areas in Wilmington proper, with new or relief sewers as well as estimates for interceptor sewers, pumping stations and primary sewage treatment plants.

Under the agreement signed with the three neighboring states, namely New York, New Jersey and Pennsylvania, a schedule was set up for the construction of sewage treatment plants in order to take out the gross pollution which is now entering the Delaware River. Wilmington was scheduled to have primary treatment plants installed during 1944 but this schedule has been held in abeyance due to the war and the priority situation. These latter two factors halted the extensive plans for the treatment of the sewage of both Camden and Philadelphia, but with the coming of the post-war period these programs will undoubtedly result in the actual construction of such improvements. Looking to the post-war period, it is essential that the city of Wilmington begin the preparation of detailed plans for interceptor sewers, pumping stations and primary treatment plants. The compliance of Wilmington with the long range plan of the Interstate Commission on the Delaware River Basin would not only eliminate gross pollution entering the Delaware directly, but would mean also the removal of the gross pollution from the two tributaries which thread their way through the city of Wilmington, namely, the Brandywine and Christiana creeks.

Included in the schedule for pollution abatement are the incorporated towns and cities of Bellefonte, New Castle, and Delaware City. Here also pumping stations and primary sewage treatment plants would be required.

The greatest need for the installation of sewers is in New Castle County, and within a radius of ten miles of the city of Wilmington.

Much construction work has been done by the New Castle Levy Court, but the whole program has been hampered, due to the fact that new construction must wait until the revolving sewer fund is replenished by those already serviced and who are paying for their front foot assessments on the sewers installed to serve them. The remedy is for the Levy Court to obtain the necessary authority from the forthcoming legislature, in order to permit the county officials to establish sanitary districts so that the cost of outfall sewers and sewage treatment plants, which will be used by large groups of population, may be carried by bonds over a period of years and the carrying charges of which would be serviced by all the taxpayers in the sanitary district.

If such a law were on the statute books the county officials could start on a much broader program, could begin it now, and then the various communities in each district, could tie in as the work progresses. There are many areas now, particularly in North Holly Oak, Gwinhurst, and Silverside Heights, north of Wilmington, and the areas such as the Marshallton and Belvidere areas, southwest of Wilmington, which are badly in need of sewers. A suggested list of projects for construction by the New Castle County Levy Court is appended.

Towns of populations sufficient in size to warrant the construction of sewer systems are Arden and Ardentown (population 605), Milton (population 1196), Blades (population 601), Selbyville (population 874) and Frederica (population 642).

Other towns and cities which have sewers but lack sewage treatment plants are Wilmington mentioned above, New Castle, Delaware City, Bellefonte, all of which discharge into the Delaware River or its tributaries, the Brandywine and Christiana creeks, Seaford which discharges into the Nanticoke River, Laurel which discharges into Broad Creek, and Lewes which discharges in the Lewes and Rehoboth canal.

### HOUSING

The Wilmington housing authority through its executive director, Mr. Samuel B. Hanby, has listed seven projects for post-war low rent dwelling construction and the suggested cost is approximately $12,000,000. These projects would entail the enlargement of Southbridge by 70 units, to a total of 250; the clearing out of the area around the Walnut Street Y. M. C. A. from Eleventh Street to Eighth Street and from Walnut Street to Guyer Street, replacing approximately 350 dwellings; the clearing out of the area around Howard High School and Kirkwood Park from Eleventh to Fourteenth Street and from Wilson to Kirkwood Street, replacing approximately 350 dwelling units; the clearing out of the area from Second to Fourth Streets and from Jackson to Washington Streets, replacing approximately 250 dwellings; enlarging East Lake to 300 dwellings, using vacant land now adjacent to East Lake and finally rebuilding the Riverside development location with approximately 300 permanent dwellings.

There are throughout the state many communities where housing developments are needed for both the white and colored. These would be individually rather small projects, 30 to 40 dwellings each. These communities are New Castle, Milford, Middletown, Dover, Lewes, Harrington, Seaford, and Laurel. It is estimated that the total cost of housing projects to be built in these communities would be approximately $1,570,000.

### MOSQUITO CONTROL

Mosquito control work which started during the period of the establishment of the Civilian Conservation Corps, was responsible for ditching approximately one-half of the mosquito breeding areas in the state, and a remarkable diminution of mosquitoes was felt by all. With the abolition of the State Mosquito Control Commission, the maintenance work has since been lodged with the State Highway Department. The lack of sufficient appropriations for maintenance work has hampered the department and many thou-

With the coming of the airports and the reception of planes from all over the world, the question of the significance of the relatively small proportion of the malarial type of mosquitoes which our records show we have in this state becomes of some moment at this time. It is suggested, therefore, that the maintenance work be increased considerably in order not only to hold what work has already

been done but also so that additional work may be done in the areas from Port Penn northward to the state line. A considerable amount of this work has been done under a recent project sponsored by the State Highway Department, the Bureau of Entymology of the University of Delaware, the State Board of Health and the U. S. P. H. Service. A routine larvicidal program is now being conducted weekly in this area by the U. S. P. H. S. and the Army. However, additional work should be done, especially in the areas northward from New Castle and adjacent to metropolitan Wilmington. The estimated initial cost for additional ditching would be approximately $50,000. In addition to this, increased maintenance appropriations will be necessary due to the necessity of maintaining all the present ditches, since anopheline breeding may become more widespread in other areas during the next decade.

**SUGGESTED POST-WAR PROGRAM**
**WATER SUPPLY**
**Immediate Construction**

| | |
|---|---|
| **City of Wilmington** | |
| Extensions to slow sand filter plant | $ 300,000.00 |
| Additional pump at Porter Reservoir | 57,000.00 |
| Additional pump at Faulk Rd. Tower | 3,400.00 |
| Replacement of pump at Cool Spring Reservoir | 57,000.00 |
| Replacement of pump at Rockford Tower | 10,000.00 |
| Replacement of Brandywine Pumping Station Boilers | 336,000.00 |
| Replacement and extension of mains approximately 45,000 (feet) of 10," 12," 16," 43" and 48" mains | 775,000.00 |
| Total | $1,538,400.00 |
| **New Castle** | |
| Construction of standpipe | 33,000.00 |
| Development of new well area | 10,000.00 |
| **Rehoboth** | |
| New well area development | 15,000.00 |
| Total Municipality | $1,591,400.00 |

**Five-Year Construction Period**

| | |
|---|---|
| Laurel—Iron Removal Plant | 27,645.00 |
| Seaford—Iron Removal Plant | 23,000.00 |
| Lewes—Iron Removal Plant | 18,345.00 |
| Bridgeville—Iron Removal Plant | 15,000.00 |
| Townsend—Iron Removal and Softening Plant | 18,000.00 |
| Total | $ 95,990.00 |

**SEWERS AND SEWAGE TREATMENT**
**Immediate Construction**
**New Castle County Levy Court**

| | |
|---|---|
| N. Holly Oak and Gwinhurst Area | $ 105,655.00 |
| Holly Oak Terrace and Silverside Heights | 79,420.00 |
| High Point and Philadelphia Pike | 43,423.00 |
| Stanton-Westfield | 41,452.00 |
| Roselle Terrace-Brookland Terrace | 20,825.00 |
| Marshallton Area (including Cedars, Cranston Heights, Marshallton Heights) | 119,425.00 |
| Belvedere Area (including Industrial School for Colored Girls) | 72,875.00 |
| Pumping and force main for Industrial School for Colored Girls | 6,080.00 |
| Minquadale Area East of duPont Blvd.—sewers and pumping station | 59,620.00 |
| Holloway Terrace—sewers | 65,125.00 |
| Total | $ 613,900.00 |

**Municipalities**

| | |
|---|---|
| **Wilmington** | |
| Addtion to and reconstruction of Brandywine intercepting sewer from Bancroft Mills to Market St. | 1,250,000.00 |
| Auxiliary sewer relieving Penna. Ave. & Union St. | 150,000.00 |
| Sewer to serve 19th and Franklin St. area | 60,000.00 |
| Auxiliary sewer facilities Maple and Van Buren Sts. | 80,000.00 |
| Sewers—Concord Ave. and Market St. | 50,000.00 |
| Sewers—Area East of Walnut St. | 175,000.00 |
| Sewers—Public Housing Project | 100,000.00 |
| Sewage treatment plant | 4,000,000.00 |
| Total | $5,865,000.00 |
| **New Castle** | |
| Force Mains, primary treatment plant plus chlorination | 66,180.00 |
| **Delaware City** | |
| Addition to sewerage system, pumping station, primary treatment plus chlorination | 28,900.00 |
| **Bellefonte-Gordon Heights Area** | |
| Pumping station and primary treatment | 35,000.00 |
| **Milton** | |
| Sewers, pumping station and sewage treatment plant | 125,000.00 |
| **Blades** | |
| Sewers, pumping station and sewage treatment plant | 48,080.00 |
| **Selbyville** | |
| Sewers pumping station and sewage treatment plant | 76,912.00 |
| **Frederica** | |
| Sewers and sewage treatment plant | 42,372.00 |
| **Milford** | |
| N. Milford area, sewers and pumping station | 24,000.00 |
| **Dover** | |
| Additional sludge digestion tank | 12,000.00 |
| Total Municipalities | $6,323,444.00 |

**Five-Year Construction Period**

| | |
|---|---|
| Arden and Ardentown | 135,000.00 |
| Liftwood and Carrcroft Area | 137,198.00 |
| Wilmington Manor—Sewers, pumping station and force main | 185,119.00 |
| Newport—Interceptor sewers, pumping stations, primary treatment plant plus chlorination | 34,545.00 |
| Richardson Park—Disposal plant, improvements to plant including new filters and sludge digestion tanks | 150,000.00 |
| Seaford—Interceptors, pumping stations, primary treatment plant plus chlorination | 76,505.00 |
| Laurel—Interceptors, pumping stations, primary treatment plant plus chlorination | 81,420.00 |
| Total | $ 799,787.00 |
| Total Sewerage Projects—Immediate | $6,937,344.00 |
| Total Water Supply Projects—Immediate | 1,587,400.00 |
| Total Sewerage Projects—Five-Year | 799,787.00 |
| Total Water Supply Projects—Five Year | 110,990.00 |
| Grand Total Sewerage Projects | 7,737,131.00 |
| Grand Total Water Supply Projects | 1,698,390.00 |
| Total | $9,435,521.00 |

**HOUSING**
**Five-Year Construction Period**

| | |
|---|---|
| Wilmington | $ 12,000,000.00 |
| New Castle, Milford, Middletown, Dover, Lewes, Harrington, Seaford and Laurel | 1,570,000.00 |
| Total | $ 13,570,000.00 |

## A SURVEY OF BIRTH REGISTRATION

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Over the expanse of the past eighty-three years, there has been a consistent improvement in the completeness of birth, death, and marriage registration from the time the first provisions were instituted in 1861 requiring the recording of such data for Delaware. The General Assembly of that year provided the present system with a beginning in that it established in each county, in the Recorder of Deeds Office, an agency for collection of these records. The system was then loosely drawn

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up and loosely operated and the results for the following years were most unsatisfactory as was proven by the criterion, "the demands of our present times." The Recorder of Deeds in each county then handled all records and had to place complete reliance on the person in attendance to these events to inform him of their occurrence. Such was the responsibility of either physician, midwife, father or mother, master or mistress where slaves were involved. All of these people were ill informed or not informed at all of the necessity of record keeping. At that time birth notices were required to be filed within three months; death notices were required to be filed within a week by the physician, coroner or sexton. It is easy to realize how under lax administration and vague delegation of responsibility that from 50 to 100 percent of the vital records were never written at all. This system operated until 1913, when Vital Statistics Registration Districts were designated, registrars employed and requirements for reporting were stiffened.

Immediately upon enactment of more detailed and better laws regulating the registration of records in 1912, the number of births reported doubled that of any previous year. The most credit that could be given to the period from 1861 to the early 1900's would be to say that the rate of reporting completeness had slowly increased but at best it was scarcely 50 percent. The deficiencies were largely in rural Delaware at that time,—namely the lower counties. Wilmington, as a metropolitan center, had the best showing, a condition we might expect in a more densely populated area where there were more central delivery facilities and more opportunities for people to be informed.

During the past 30 years we are entitled to believe that registration has so improved until at the present time we might consider that the Vital Statistics Organization functions 97 percent perfect in this respect. The 97 percent is a measure for Delaware obtained by the Bureau of Census in 1940 in a survey which was made by the enumerators at the time of taking the census of that year. While taking data, the enumerator wrote up an infant card containing statistical particulars for infants born during December, 1939, plus those born during January, February,and March of 1940. These cards were then sent to the Bureau of Census and checked with transcripts, which transcripts are mailed routinely to the Bureau of Census by the Delaware Vital Statistics Division. The enumerators reports, for which there were no transcripts, were then checked by correspondence and by visits in person. By this method it was possible to determine whether a birth certificate had ever been written in the first place or as to its disposition if misplaced. The net result of the investigation was that 97 percent were reported, and Delaware ranked thirteenth place from the top among the states of the Union in this survey.

Our criterion of efficiency is very good; however, we can improve and must constantly endeavor to attain 100 percent completeness in reporting. If 97 out of every 100 births are reported there are 3 unreported. In an ordinary year Delaware's infant population increases by 4,500. If then 3 per hundred are not registered there will be each year 135 babies with no membership record in the Vital Statistics Division, a record which may well be of great service to each child at some time during its life.

## WAR WIVES AND GI BABIES

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In spite of the drain put on the medical profession by the call of so many physicians to military and naval duty and in spite of the overworked hospital personnel and crowded conditions of the hospitals, wives of certain members of the armed forces, through the plan authorized by Congress popularly known as EMIC, are receiving in the state of Delaware the best medical and hospital services available for their care during pregnancy. The Federal grant to soldiers' wives for maternity and infant care was fully explained in a former issue of THE JOURNAL** and any further description would appear to be unnecessary. As is known, those eligible under the plan are the wives and infants

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** Delaware State Medical Journal, August, 1943.

(under one year of age) of members of the armed forces in the first four grades of pay, with an amending clause this year which allows the wives of army aviation cadets to secure medical services. There has been also a noticeable change made in respect to increase in fees paid to attending physicians and consultant specialists for their services during the past year. However, a maximum rate is established by the Federal government which State Boards of Health are not allowed to exceed.

State agencies are empowered to administer this plan, and in Delaware administration has been placed in the Division of Maternal and Child Health of the State Board of Health. For the fiscal year ending June 30, 1945 the sum of $42,800,000 was appropriated by Congress. Of this amount proportionate funds have been allotted to the several states, which is based upon previous experience of applications received and authorizations made. Of this allotment 2½ percent has been allowed for administrative purposes. This small amount for administrative purposes within the state has put an additional burden upon the Boards of Health in the several states, and noting that the amount is not enough to pay for one qualified clerk, it has been necessary for the State Board of Health of Delaware to supplement this with two additional clerks, paid out of State Board of Health funds.

### Participating Physicians

The physicians of Delaware have done an admirable piece of work in contributing their medical skill generously in return for the very modest fees which are allowable. The State Board of Health has been fortunate in obtaining the services of specialists in obstetrics, pediatrics, and surgery who have given their time and medical skill irrespective of any remuneration which they might receive, so therefore the wives of enlisted men receive the highest grade of medical care that can be procured. All physicians duly licensed in the state are eligible to participate in the plan, and practically every general practitioner practicing obstetrics and specialists in this field are participating, and information for those physicians who may not be aware of EMIC can be secured by communicating with the Division of Maternal & Child Health, State Board of Health. It would not be amiss to quote some excerpts from a joint message from the Surgeons-General of the Army and the Navy to physicians in the United States:

"Physicians the country over are contributing their medical skill to this wartime program generously and in return for moderate recompense. Hospitals the country over have opened their doors to these wives and their infants, making available accommodations where their medical needs can be met adequately, though without luxury care. Nurses the country over are helping in the city and the rural homes and in the hospitals.

"All this is being carried out voluntarily by those who are participating in the program. All this is being done in spite of the great shortage of physicians and nurses serving the civilian population—a shortage caused by the entry into the armed forces of thousands of our physicians and nurses.

"This program of maternity and infant care for wives and infants of enlisted men is made possible by grants from the Federal Government through the Children's Bureau of the Department of Labor and state health agencies, for the purpose of relieving anxiety among the enlisted men as to how the costs of maternity care for their wives, or the costs of medical care for their infants, will be met in their absence from home while in the armed forces, when for a great majority, their family income has been lowered materially. The program carried out by the state health agencies brings assurance to the enlisted men that their national and state governments are doing whatever is in their power to make care available to their wives and infants, that physicians throughout the country are helping."

The medical corps of the Army and Navy and the Public Health Service are responsible for the health and medical care of the men in the armed forces. The State Board of Health has assumed a responsibility for the health, during pregnancy, of the wives of these men and for the care of the newborn during their first year of life. In participat-

ing in the EMIC program Delaware physicians have given valuable aid in the prosecution of the war by helping sustain the morale of the troops. This is true because these men can be assured that, while away from home, their families are being given the best medical advice and care obtainable.

### PARTICIPATING HOSPITALS

In Delaware most of the approved hospitals have made their services available for delivery of soldiers' wives and for the care of sick infants. The remuneration to the hospital is based on a rate determined on the amount of reimbursable cost of in-patient services per patient day. Naturally, the fees paid to the various hospitals will differ but the type of hospital services rendered remains practically constant. Formal agreements have been made between these participating hospitals and the State Board of Health. The main points in the agreement are that the hospital agrees to furnish complete maternity care as defined by the state agency, and the state agency assumes responsibility for prompt payment of all indebtedness connected with the hospital care of the woman and of the infant, up to a maximum of 14 days stay in the hospital. The same responsibility is assumed relative to the payment of fees for physicians and nurses services. Since this responsiblity is assumed by the state agency, no charge can be made to the patient by either attending physician or hospital, and payment of fees by a wife for medical services whose application for medical care has been authorized automatically suspends authorization until restitution of funds is made to said wife. Several such instances have occurred, to the apparent detriment of the soldier's wife. This charge in practically all cases was due to a misunderstanding of the plan as set up by the state agency. Where a charge has been made, either by physician or hospital, upon their being informed of the handicap placed upon the woman, they have reimbursed any fees so collected and the physicians and hospitals have then been paid as authorized.

It would be gratifying if all the hospitals in the state were participating in this plan and it is felt a need exists in certain rural districts for such hospitalization, since at present some of these patients are compelled to accept home delivery.

The records for the past six months show that the average stay in the hospital is 10 days, which rather refutes the ill-conceived notion that these wives are "rushed" from the hospital after the baby is born. The average stay for the infants after birth is 16 days, which would tend to bear out the theory that prematurity tends to predominate during stresses of war.

Since the approval of the Delaware EMIC Plan in April, 1943 to the end of June, 1944, 981 cases have been authorized (895 maternity and 86 infant).

For the benefit of those physicians who are unfamiliar with the plan and who perhaps did not read the article in THE JOURNAL of August, 1943, the following services are available to the wives of the above mentioned personnel: the Emergency Plan provides complete medical care including prenatal, delivery, and postpartum care by the physician of the woman's choice, antepartum nursing instruction by State Board of Health nurses, and a maximum of 14 days stay in the hospital of the patient's choice or as recommended by the attending physician, or if a home delivery is desired that can also be authorized if the physician so desires. Home delivery nursing service is authorized, where available, and postpartum nursing service by the VNA in areas in which they operate. For infants who might be taken sick from birth up to one year of age, physician's services at home or office or in attendance at hospital, and hospitalization can be authorized for a period of 3 weeks and extended when conditions of the infant justify the same. Any practicing physician is privileged to call in consultation any of our certified consultants for either the pregnant woman during her pregnancy or for the infant when taken sick during its first year of life The State Board of Health realizes that physicians are so overworked that they do not have all the time they would like to give individual instruction in prenatal care, nutrition, and various other details considered quite important by the expectant mother. In anticipation of an arising emergency there is available through the

Division of Maternal and Child Hygiene a series of prenatal letters, one for each month of pregnancy, prepared in simple language and which the average young expectant mother can understand. In regards to nutrition and various problems concerned therein, excellent information can be secured through instruction sheets on these problems prepared by the nutritionist assigned to the State Board of Health. In another article in THE JOURNAL a full discussion on nutrition and its relation to pregnancy may be found.

In the success of this program assistance and cooperation has been secured from not only official but non-official agencies throughout the state, which has been deeply appreciated.

Although this program has been subject to much misunderstanding, misinterpretation, and criticism, in many instances, of both state and federal government, the facts show that a considerable amount of assistance has been afforded the wives and infants of men of the armed forces, and thus these wives feel a certain amount of security in knowing that the services of well-trained physicians are available.

## MORTALITY AND PREVALENCE OF HEART DISEASE IN SCHOOL CHILDREN OF DELAWARE*

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### MORTALITY

Heart disease ranks high as a cause of death among children over the age of five years. In the national figures for the year 1939, heart disease was second to accidents as a cause of death in the age group of ten to fourteen years. The figures for the state of Delaware, although they are small, indicate this same tendency. For the entire age span from 5 to 19 years, heart disorders caused more deaths than any other condition except accidents. (Table 1.)

TABLE 1.
Mortality in the year 1939*

Age 5-9 years—U. S. A. 12,338 deaths; Delaware—21 deaths

| | Deaths | Percent | Deaths |
|---|---|---|---|
| Accidents | 3114 | 25.2 | 9 |
| Respiratory | 884 | 7.2 | 1 |
| Appendicitis | 884 | 7.2 | 1 |
| Heart disease | 746 | 6.0 | 3 |
| Tuberculosis | 514 | 4.2 | 2 |

Age 10-14—U. S. A. 12,614 deaths; Delaware—28 deaths

| | Deaths | Percent | Deaths |
|---|---|---|---|
| Accidents | 3264 | 25.9 | 8 |
| Heart disease | 1208 | 9.6 | 6 |
| Appendicitis | 1102 | 8.7 | 2 |
| Respiratory | 1078 | 8.5 | 3 |
| Tuberculosis | 861 | 6.8 | 3 |

Age 15-19—U. S. A. 22,140 deaths; Delaware—58 deaths

| | Deaths | Percent | Deaths |
|---|---|---|---|
| Accidents | 5546 | 25.0 | 33 |
| Tuberculosis | 3532 | 16.0 | 9 |
| Respiratory | 1980 | 8.9 | 1 |
| Heart disease | 1508 | 6.8 | 7 |
| Appendicitis | 1316 | 5.9 | 0 |

* From Mortality Reports of the U. S. Bureau of Census 1939.

### PREVALENCE

Only in recent years have public health departments established programs for the care of children with cardiac disease. The first step in any such plan is the determination of the prevalence of the disease. This is a difficult matter because no simple tests are available.

The mortality figures, mentioned above, indicate the severity of heart disease but not the prevalence nor the frequency of rheumatic fever attacks.

Compulsory reporting of patients with rheumatic fever encountered by physicians, has been carried out with success in Great Britain and in the Scandinavian countries, but the results have been disappointing in the few portions of this country in which it has been tried.

Studies of house to house health surveys have estimated the prevalence of rheumatic fever, but have been expensive, difficult to conduct and limited to small areas. In the surveys made in Hagerstown, eastern Baltimore, and New Haven, the prevalence of rheumatic attacks in children from 5 to 14 years of age was given as about 2 per 1000 population, and evidence of rheumatic carditis in the same age group was found in from 12 to 20 per 1000 population. (Paul)

The examination of school children gives an index of the number of children with cardiac lesions who may need the special care. Such surveys have been conducted in several cities and a summary of the results, taken from the review by Rauh is represented in Table 2.

* We wish to thank Dr. Robert A. Lyon, now located elsewhere, because he was instrumental in developing this program.

We wish also to thank the following school principals for their cooperation: Messrs. B. W. Hartley and S. M. Blackburn of Dover; R. E. Shilling and E. J. Waters of Milford; J. D. Thomas of Georgetown; D. M. Green of Delmar; R. A. Shields of Lewes; G. E. Nichols of Dagsboro; and Miss P. Fountain of Rehoboth.

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Almost all of the previous surveys have been made in urban centers and there is evidence from two or three reports that the incidence of heart disease among children in urban areas is several times greater than in rural communities. (Paul)

TABLE 2

Prevalence of Heart Disease in School Children

| | Total School Population | Organic Heart Disease Percent |
|---|---|---|
| New York City, 1915 | 278,174 | 1.5 |
| New York City, 1918 | 250,000 | 1.6 |
| New York City, 1918-22 | 1,336,343 | 1.39 |
| New York City, 1921 | 44,000 | 0.5 |
| Chicago, 1923 | 158,826 | 0.9 |
| Philadelphia, 1924 | 23,671 | 0.63 |
| Chicago, 1924 | 153,671 | 1.5 |
| Chicago, 1925 | 130,260 | 1.7 |
| Boston, 1927 | 119,337 | 0.52 |
| Philadelphia, 1929 | 10,333 | 0.91 |
| Florida, Illinois, Missouri, 1929 | 17,974 | 1.0 |
| Cincinnati, 1927 | 6,960 | 0.37 |
| Rochester, Minn., 1931 | 1,328 | 0.7 |
| New York City, 1931 | 2,691 | 1.1 |
| New Haven, 1934 | | |
| "Better school" Grade 1 | 1,444 | 1.32 |
| "Better school" Grade 5 | 1,123 | 1.42 |
| "Poorer school" Grade 1 | 1,863 | 1.93 |
| "Poorer school" Grade 5 | 1,628 | 2.08 |
| Philadelphia, 1937 | | |
| Elementary | 33,293 | 0.5 |
| High school | 9,154 | 0.9 |
| New Mexican Indians, 1937 | 1,019 | 0.5 (rheumatic only) |
| Northwestern Indians, 1937 | 688 | 4.5 (rheumatic only) |
| San Francisco, 1938 | 13,338 | 0.37 |
| Cincinnati, 1938 | 85,389 | 0.35 |

## PREVALENCE IN RURAL DELAWARE

The area surveyed was restricted to Kent and Sussex counties which are distinctly rural, with no towns of more than 6,000 population. Two schools in Kent and six in Sussex were selected. The examination was rapid, consisting of auscultation of the heart with the children in a standing position. At least four areas of the precordium were examined: the apex; the mid-cardiac area, usually in the fourth intercostal space midway between the nipple and the sternum; the left sternal border in the third or fourth intercostal space; and the pulmonic area in the left intercostal space. When any unusual sign was discovered, the cardiac size was estimated, the shape of the chest, the child's color and nutrition were noted, the teeth and pharynx examined and a short history obtained from the child whenever possible. Four physicians participated in the examinations but whenever one found anything unusual in a child, another examiner usually checked the findings.

A total number of 2990 children were examined in the schools of Dover, Milford, Georgetown, and Delmar. The ages of the pupils ranged from six to nineteen years, and 398 (13 percent) of the group were Negroes.

At a subsequent time (after the transfer of Dr. R. A. Lyon, a specialist in this field) 800 additional children were examined in schools at Lewes, Dagsboro and Rehoboth. Since the percentage incidence did not differ from the original calculations, the calculations are based on the 2990 children originally examined.

Murmurs typical of congenital heart disease were found in 9 children, or 0.3 per cent of the series. Murmurs indicative of rheumatic valvular heart disease were noted in 13 children, or 0.4 per cent of the entire group. Six of this latter group were Negroes (1.5 per cent of the total number of Negroes) and seven were white children, or 0.27 per cent of that group. Although the numbers are small, the analysis of the statistics indicated that the difference was a real one.*

In respect to age, the rheumatic disease seemed to be about evenly divided between the older and younger children, with 7 occurring in those under 6 years of age and 6 in the older group.

A group of 59 other children, or 2 per cent of the entire series, had abnormal cardiac sounds which usually consisted of short murmurs near the sternum, which tended to vary with respiration and were not typical of either rheumatic or congenital heart disease. These were labelled accidental murmurs for want of a better term and note was made of them for future reference and observation. Six additional children had extrasystoles, and one had a pulse rate of only 50 per minute which may or may not be of any significance.

TABLE 3.

The Prevalence of Heart Murmurs in Delaware

Type of murmurs of 2990 children

| | Children | Percent |
|---|---|---|
| Rheumatic | 13 | 0.4 |
| Congenital | 9 | 0.4 |
| Total | 22 | 0.7 |
| Accidental | 59 | 2.0 |
| Arrhythmia | 7 | 0.2 |
| 6 extrasystole | | |
| 1 bradycardia | | |

Race Distribution of Rheumatic Murmurs.

| Race | Total # of Children | No. of Murmurs. | Percent |
|---|---|---|---|
| White | 2592 | 7 | 0.27 |
| Negro | 398 | 6 | 1.5 |

Age Distribution of Rheumatic Murmurs.

| | | | |
|---|---|---|---|
| Under 6 years | 1366 | 7 | 0.5 |
| Over 6 years | 1624 | 6 | 0.37 |

* The figures were arranged in a four fold table and the formula of $X^2 \frac{(ad-bc)^2 N}{(a+b)(c+d)(a+c)(b+d)}$ was applied. A value of p of .0005 indicated that it would be extremely unlikely that such a difference of incidence would arise from chance alone.

### COMMENT

It must be emphasized that this survey represents the preliminary screening of school children for the detection of murmurs only. The next procedure should be a more thorough examination of this selected group and the employment of roentgenograms and electrocardiograms for making a more accurate diagnosis.

It seems probable, from this sampling of representative schools, that there will be approximately 0.7 per cent, or 273 of the approximate total numbers of 39,000 school aged children of the state, who might require supervision for cardiac disease. Included in this estimation are the children of the city of Wilmington. Here prevalence of rheumatic fever may be greater than in the rural counties to the south where the children were examined which would make a 0.7 per cent overall estimate low. Without doubt more than this number of children suffer from attacks of rheumatic fever without developing any demonstrable evidence of cardiac disease. Throughout the school groups examined there were several children with apparently normal hearts who volunteered the information that they had had rheumatic disease within the past few years. There may be other children at home or in the hospitals who have such severe rheumatic carditis that they could not attend school. When we compare our figures with those of Philadelphia, while the prevalence is less in rural Delaware it is not one-half or one-third as suggested by some studies.

### SUGGESTED MEASURES OF CONTROL

An adequate program which would provide care and supervision of children with heart disease throughout the state would include the following activities:

1. Case finding, with reports from physicians of cases of heart disease or rheumatic fever.

2. A central file of the records of these children. Such a file has already been started for records of children found in school surveys.

3. A consultation service with a thorough examination of children suspected of having heart disease, by a pediatrician or internist trained in cardiology.

4. Adequate care of acutely ill cardiac children to include beds for those requiring prolonged convalescent care.

5. Broad educational program for instruction of nurses, physicians, and the laity in the problems of heart disease, the dangers of rheumatic fever, and the accepted methods of diagnosis and care.

### CONCLUSIONS

On the examination of the hearts of 2990 children of Kent and Sussex counties in Delaware, a group of 22 children were found to have clinical evidence of organic heart disease, a prevalence rate of 0.7 per cent.

Of this group of 22, there were 9 (0.3 per cent) with murmurs characteristic of congenital heart disease, and 13 (0.4 per cent) with evidence of rheumatic heart disease. The latter condition was fairly evenly distributed between the children of the elementary and high schools but was somewhat more frequent in the Negro than in the white children.

Arrythmias consisting of 6 cases of extrasystoles and one of bradycardia were discovered. A group of 59 additional children had slightly abnormal cardiac sounds which were designated as accidental murmurs.

The survey suggested the need for a broad and permanent program for the supervision and care of these children with cardiac disease.

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## OPERATIONAL SHORTCOMINGS OF A DIVISION OF COMMUNICABLE DISEASE CONTROL

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At the end of each year an inventory should be taken not only of accomplishments but also of failures. This article is written to emphasize failures and to stress how the practicing physicians may assist.

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### DEPENDENCE ON THE PRACTICING PHYSICIAN

To work effectively cooperation is necessary. A basic item in such cooperation is the prompt, faithful and complete reporting of communicable disease by physicians. It is estimated that 30-35% of the cases of syphilis in Delaware exist in whites yet, for example, in 1943 only 12% of the cases of syphilis reported were for whites. Does this mean that syphilis in whites is receiving only one-third the attention that syphilis in the colored is receiving or does it mean that the private physician is not reporting white cases? If it means that the white is only receiving one-third the attention one might expect syphilis in the whites eventually to exceed syphilis in the colored in Delaware.

There is inadequate reporting of other diseases. It is not unusual in annual reports to find that the reports of cases of mortality of tuberculosis exceed those of morbidity. It is estimated that some 3,000 cases of tuberculosis exist in the state and that approximately 6% of these have a positive sputum. Obviously the latter are dangerous, and adequate record of examination should be kept on all suspected cases. The state is attempting through its central register to record each case of tuberculosis and is calling on the physicians of the state to cooperate.

Inadequate reporting not only hampers the operation of your health department but the operation of other health departments. Accurate reporting of the stages of syphilis is essential. The stage of syphilis must be reported if your state is to attain the goal of 100% efficiency attained by many states in USPHS tabulations.

It is essential that infectious syphilis be separated from non-infectious syphilis in order that these cases and their contacts be given especial attention to prevent spread of the disease. Records compiled by the USPHS for the first four months of the fiscal year of 1943-44 show that ratios of infectious to non-infectious cases reported range from 2.8 to 8.0 in various states. Obviously the state with the low ratio may be more active in finding new syphilis and in education or the disease may be on the increase. Delaware's ratio for this period was 3.5 which probably indicates a good degree of activity in finding new cases and some increase in incidence of the disease.

### HOW CAN THE HEALTH DEPARTMENT HELP THE PHYSICIAN?

What are the duties of the health department? The original purpose of the health department was to take steps to prevent disease in healthy persons. This, obviously, is a community function. If one could visualize a community without indigents, health department duties might have remained so limited. Today, because of lack of medical service it is necessary to do many things other than those for which a health department was originally intended. The health department wishes to help the physician and offer him every service, consultation, aid in finding contacts and material which it has available so that he may better and more easily perform his duties.

Many physicians have grown up with a saying of Osler impressed on their minds: "Treat the patient, not the disease." This adage is not sufficiently broad for this day and time because today the physician should not only treat the patient but also should aid in treating the disease. Basically the health officer treats the disease and not the patient since he prevents spread of the former. To effectively prevent spread the physician's help is essential. Close harmony and close cooperation are necessary.

### COOPERATION BETWEEN HEALTH OFFICER AND PHYSICIAN

Lack of cooperation is due to many factors.

1) Failure to meet on a neutral ground. Agreement is essential to reach an understanding relative to the duties and purposes of the groups concerned. If this does not exist, misunderstood overlappings and causes for friction exist. Physician and health department have a sufficient number of objectives in common to make such cooperation advisable.

2) Failure plainly to define wants and understand meanings. Probably health departments have been especially lax in this respect. Terms such as latent syphilis, new syphilis, moderately advanced tuberculosis

have often been defined differently so that confusion has resulted with a perfectly justifiable feeling on the part of the physician that until some understanding is reached it is best that he let the thing pass.

Standardization is essential and until health departments and physicians agree on such standardization difficulties are bound to arise. Half a dozen agencies cannot go on desiring different data under like designations. An example can be given using the definitions of the term delinquent. Delinquent is defined by various groups as: (1) one who fails to keep one appointment; (2) one who fails to keep two weekly appointments; (3) one who fails to keep one month of weekly appointments; (4) one who fails to keep appointments over a period of ninety days.

It is obvious from the above that such discrepancies might disgust many private physicians as they likewise do active health officers. The physician must realize that the health officer is trying to correct such difficulties. He must realize that the health officer needs his help and gladly will reach an agreement with him relative to the particular jurisdiction concerned.

### DATA OFTEN NOT CLEAR IN THE MINDS OF PHYSICIANS

During the past year questions have arisen illustrating that certain data were not clear in the minds of some physicians. Much of this data dealt with syphilis and for that reason this disease is chosen as the topic of the following article. Much that applies to syphilis also applies to tuberculosis and to the typhoid carrier state, which are the two other chronic diseased conditions prevalent among us. In all three conditions data relative to the patients should be recorded in the health department. These diseased conditions may prove in the instance of the typhoid carrier and tuberculosis case a persistent danger to others the remainder of the patient's life.

## IMPORTANT FACTORS IN THE CONTROL OF SYPHILIS

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Syphilis is a public health as well as a personal problem and an infectious disease the same as scarlet fever and smallpox. Reporting is a very important weapon in combating its spread. The control of this disease depends upon several factors:

### CASE OF SYPHILIS

First—Case Finding. This necessitates darkfield examinations and follow-up serologic tests of all patients with genital lesions and slow healing extragenital sores. It necessitates routine serologic tests for syphilis on all patients presenting skin eruptions or any pathology of undetermined etiology. Containers for mailing darkfield specimens and blood specimens are available to all physicians upon request. Darkfield examinations and serologic tests for syphilis are performed at the State Board of Health Laboratory. Services for obtaining darkfield specimens are also furnished upon request.

Second—Case Holding. Continuous treatment is important. For the patient to receive the maximum benefit, he must not miss any of the prescribed course of treatment. Inadequate treatment in early stages may give rise to infectious relapses. Maximum treatment benefits are obtained in primary, secondary and early latent stages by the administration of thirty injections of an arsenical and forty of a heavy metal. The minimum adequate treatment for the prevention of infectious relapses consists of twenty arsenicals and twenty heavy metals. Late latent cases are given twenty arsenicals and thirty heavy metals, after which the patient is probated for a period of six months. Advisability of additional treatment is determined by the physician after complete physical examinations and serologic study. The State Board of Health maintains a delinquency service. Names of delinquents are submitted by physicians, then visited by a public health nurse. The disease is explained to the patient and he is advised to return to his doctor for further treatment.

Third—Reporting. This is the only guide as to the number of persons infected in a given period of time. In order for the report to be of value it must signify the stage of the disease. The stage of the disease is an aid in prescribing the course of treatment.

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## DIAGNOSIS OF SYPHILIS

The primary stage of syphilis is manifested by the primary lesion of syphilis (the chancre). The diagnosis must be made by a darkfield examination and a serologic test. If the serologic test of the blood is negative, the diagnosis of primary syphilis is not permissible without demonstration of spirochaeta pallida by darkfield examination.

Serologic follow-up—Every genital lesion is to be regarded as syphilitic although darkfields are negative, until repeated blood serologic tests over a period of three months remain negative. The diagnosis of chancre is not a clinical but a laboratory problem and no form of treatment should be administered without a positive laboratory report. In primary syphilis infectiousness and curability through treatment are at a maximum.

The secondary stage of syphilis usually begins six weeks after the primary lesion. It is characterized by one or more of the manifestations of a systemic dissemination of the spirochetes, such as skin eruption, mucous patches, sore throat, and constitutional symptoms such as malaise, headache, joint pains, etc. Diagnosis of secondary syphilis is made on the basis of the appearance of the secondary manifestations with a positive darkfield and a positive serologic test. The lesions of secondary syphilis are infectious, especially those occurring in moist intertriginous areas, areas subject to friction and mucous surfaces.

In relapsing secondary syphilis a second systemic dissemination of the spirochete takes place, usually because of a premature cessation of arsenical therapy. The commonest time for relapse (85% of infectious relapses) is within the first six months and the majority of all early relapses occur before the second year. Therefore continuous treatment is imperative the first two years of the infection.

Latent syphilis means hidden syphilis. The term asymptomatic is to be preferred to latent. The latent or asymptomatic stage of syphilis begins with the disappearance of secondary manifestations and continues until the end of the patient's life (or "cure" of his syphilis) or may be interrupted by the development of tertiary or late manifestations. Early latent denotes infections of four years duration or less and late latent infections with a duration of more than four years.

In instances where painstaking interrogation fails to establish the duration of the infection, the age of the patient is utilized in differentiating latency. If the patient is under 25 years of age, the case is designated early latent and if the patient is 25 years of age or over the case is designated as late latent.

Tertiary syphilis is the symptomatic stage which may follow the latent period. Many of the lesions may be classified according to the anatomical structures involved into one of four main categories: mucocutaneous (late syphilitic gummatous lesions of skin or mucous membranes); osseous (periostitis, osteomyelitis, arthritis, synovitis); ocular (iritis, uveitis, keratoiritis, keratitis, choroiditis, but not including optic atrophy); and visceral (hepatic, gastric.)

If the central nervous system or cardiovascular system is involved cases usually are not reported as instances of tertiary syphilis but, because of their gravity and frequency and the necessity for specialized treatment, as neurosyphilis or of cardiovascular syphilis. Cardiovascular syphilis includes lesions of the heart and great vessels, as aortitis, aneurysm and aortic regurgitation. Neurosyphilis includes all syphilis with involvement of the central nervous system, classified as asymptomatic; acute syphilitic meningitis; diffused meningovascular; tabes dorsalis; general paresis; and psychosis.

The diagnosis of congenital syphilis (infection acquired in utero) is made after the third month of life, unless laboratory and clinical manifestations are conclusive. After the third month of life, the results of repeated serodiagnosic tests are acceptable criteria of the presence or absence of the disease. Results of serodiagnostic tests performed upon "cord blood" are not considered acceptable as the sole media for the establishment or exclusion of a diagnosis of congenital syphilis. In young children, the diagnosis is dependent upon repeated serodiagnostic test, history and clinical evidence of this type of infection. In older children and adults, the diagnosis is de-

pendent upon the demonstration of the existence or previous existence of pathological changes, characteristic of congenital syphilis and the results of repeated serodiagnostic tests.

The prevention of congenital syphilis is treatment of prenatal syphilis. Unfortunately many women fail to consult a physician until near term and routine serologic study of the pregnant patient is not practiced by all physicians.

### SYPHILIS IN PREGNANCY

It becomes obligatory to insist that every woman who has or has had syphilis must receive anti-syphilitic treatment during every pregnancy, irrespective of the amount of treatment which she has had in the past and irrespective of her apparent clinical status, provided she shows no evidence of intolerance to the treatment. It follows, therefore, that every person who has had syphilis must be suspected of still harboring some hidden focus of spirochaeta pallida, even though still clinically and serologically she is well and has been well for many years. (See supplement No. 7 V. D. Information, USPHS)

It is estimated that there are approximately one million potential mothers in the United States with syphilis and that each year 85,000 feti have the disease transmitted to them by these mothers. Of these 25,000 die before birth and 60,000 are born alive with syphilis. The latter would represent about 10% of newly acquired syphilitic infections occurring each year. These infections are more serious to the individual than are those acquired by adults.

If all facilities available at the present time were used, congenital syphilis could be completely eradicated in a few years. Evidence in this direction exists in the experience of Denmark, with a population of 3,776,328, where in 1930 there were fewer cases of congenital syphilis than there were in the average city of 150,000 in this country.

## LABORATORY COMMENTS RE: SYPHILIS

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### DIAGNOSIS

Laboratory tests are of the greatest importance in the diagnosis and evaluation of treatment of syphilis. Demonstration of the incitant, treponema pallidum, is esssential to early diagnosis. If the lesion has been treated with an antiseptic, treponema pallidum most likely will not be found. In case treponema pallidum is not demonstrated in a suspicious lesion, repeated darkfield examination should be made for several consecutive days, and blood for serologic tests should be submitted. The blood usually is positive by the fourth or fifth week, and sometimes earlier.

During the secondary stage of syphilitic infection, the blood reacts in almost 100% of cases. Thus at a time when the disease is especially communicable, serologic tests are most dependable as an aid in diagnosis.

In tertiary and latent stages, the percentage of reactions obtained is lower than in the secondary syphilis. However, many such cases that would otherwise be overlooked are detected by means of serologic test.

While the value of examining the blood is now almost universally appreciated, the necessity of the study of cerebro-spinal fluid may not be so generally recognized. The detection of beginning neurosyphilis or the ability to assure a patient, after he has had adequate treatment, that his cerebro-spinal fluid is entirely normal is of vital importance. Thus the cerebro-spinal fluid of every patient who has been found to have syphilis should be examined at least once after treatment. Of course, at any time, in case neurologic symptoms of syphilis develop or the blood of the patient continues to react after intensive treatment, the study of the cerebro-spinal fluid is imperative.

### DEFERRED DARKFIED EXAMINATION

By deferred darkfield is meant the examination of serum at periods ranging from a few hours to several days after their collection. Reihl, in 1919, and coincidentally Schereschewsky using glass capillary pipettes sealed by fusing in a flame, first demonstrated the practicability of this method. Reihl found recognizable spirochaeta pallida as long as 14 days after collection. The immediate darkfield is the preferable test, but when it is not available to the physician the deferred

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darkfield examination can be had by submitting some of this serum in our regulation mailing case to this laboratory. The mailing outfit is the same as that of the New York State Department of Health and of several other states. It consists of two glass capillary tubes in a corked test tube container; a small tube containing wax for sealing the capillary tubes; mailing case and instructions for obtaining serum.

It is extremely important to select for darkfield examination lesions which are as young as possible. Old lesions contain relatively fewer organisms because of the destructive effect of local tissue reactions. No antiseptic should be used on the sore for at least 24 hours before the examination, nor antisyphilitic drug and particularly no intravenous arsphenamine should be used before the darkfield examination. The surface of the lesion should be cleansed with sterile saline in order to remove most of the extravenous bacteria. Care should be taken, of course, to avoid hemorrhage. Hemorrhage will introduce into the preparation too many red corpuscles, which will defeat the very object of the examination by hiding the spirochaetes. While syphilitic primary lesions are extremely contagious, it is a well known fact that the spirochaetes are not on the superficial parts of the lesion. It is, therefore, necessary, in order to make a successful darkfield examination to get deep tissue fluid from the lesion.

### APPROVAL OF LABORATORY FOR MAKING SERO-DIAGNOSTIC TESTS FOR SYPHILIS

In order to comply with an act passed by our Legislature of 1939, which requires laboratories making serodiagnostic tests for syphilis from prenatal cases be approved by the State Board of Health, all of the hospitals and one defense plant laboratory have agreed to have their tests evaluated. For a laboratory to be approved it is absolutely necessary that it use an approved serodiagnostic test, such as Kolmer, Kahn, Kline, Hinton, or Eagle, etc. These laboratories should be evaluated as to sensitivity and specificity. Sensitivity means the ability of the test to react positively with samples of blood from syphilitic individuals. Specificity means freedom from false positive reactions.

During the past 8 years this laboratory has taken advantage of this opportunity, which was offered by the Division of Venereal Disease of the U. S. Public Health Service to all state and branch laboratories, to collaborate in the evaluation of serodiagnostic tests for syphilis. The Kahn and Kolmer tests were evaluated for sensitivity and specificity by the examination of approximately 200 samples of blood from syphilitic patients and comparing our results with those obtained by the originators of these tests.

Dependable serodiagnostic examination is the foundation of syphilis control. If syphilis control is to be obtained in this state, it is essential that serological tests be of high accuracy whether performed in the state laboratory or a small isolated laboratory. The tests should be of sufficient scope to differentiate accurately sera of marked and slight specific activity in order to avoid prozone effects. Positive reactions are not usually obtained or are obtained only in rare instances, with specimens from persons in good health and free from syphilis. Definite reactions should be obtained in all but a small percentage of instances with specimens from syphilitic individuals. As a tentative plan for the approval of laboratories in this state performing serodiagnostic tests for syphilis I make the following suggestions.

First, the Delaware State Board of Health laboratory in conjunction with the V. D. Research Laboratory, U. S. Marine Hospital, serve as controls.

Second, to give a fair estimate of the performance of any tests in terms of specificity and sensitivity, the number of specimens from specially selected individuals and selected syphilitic donors should be not less than 100.

Third, that the syphilitic and non-syphilitic donors be selected by the Director of Communicable Disease Control and his assistants and be completely documented in order that the status of the patient be clearly established.

Fourth, as the sensitivity of the test is determined by its ability to detect miminal concentrations of reagin, the syphilitic donors should be selected on a basis to include not more than 20 per cent of positive serums containing large amount of reagin. The balance

of the syphilitic donors should be selected from patients with treated and untreated syphilis whose sera might be expected to contain limited amounts of reagin.

Fifth, for the purpose of specificity, the negative controls should be drawn from presumably normal non-syphilitic individuals. These controls should also include specimens from persons presenting other conditions such as febrile states, cancer, and pregnancy.

Sixth, to qualify as satisfactory, a laboratory should attain a sensitivity rating not more than 10 below that of the control, and a specificity rating of not less than 98%.

Seventh, laboratories once approved should be re-examined at least once every year. Opportunity for retesting should be offered more frequently to those laboratories which fail to gain a satisfactory rating.

This plan follows, substantially, the method used by the U. S. Public Health Service in evaluating the state and branch laboratories.

## WHAT A COUNTY HEALTH UNIT MEANS TO A DOCTOR AND HIS COMMUNITY

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Who remembers way back when there were no County Health Units in Delaware?

To remember it best, you must have been practicing medicine before 1927, for it was then that the Units were set up in this state. Prior to that time, for instance, private physicians had to carry the entire burden of communicable disease control. True, there were quarantine laws, but no one to enforce them. Older doctors never knew the relief of turning over any health responsibilities to their county health departments. Either they did the work themselves, or it was not done.

Take tuberculosis—A doctor can now report a case of tuberculosis to the Health Unit in his county and the Unit, from then on, takes the responsibility of trying to prevent its spread in the family and in the community. Busy doctors, we are told, like this, for, though they take care of their own private patients, they cannot go about checking on all the people with whom their "TB" patients have come in contact, and have them examined.

Fluoroscopes are maintained in the health centers in Wilmington, Dover, Georgetown, and Laurel and many physicians who do not possess these diagnostic facilities refer their patients to the tuberculosis clinics for examination by Dr. L. D. Phillips.

### VENEREAL DISEASE

Many doctors in Delaware are now referring their delinqnent "VD" patients to their County Health Unit and asking that the public health nurses locate them and return them to treatment. Where possible, the patients are sent back to the doctor. However, if they are medically indigent, they are referred to the Unit's venereal disease clinic.

In an effort to stamp out syphilis and gonnorhea in the state, drugs for the treatment of these diseases are furnished free to physicians by the State Board of Health. All the Board asks in return is that the cases of venereal disease found by the doctors be reported to their County Health Units. The Board's teaching in the press and through the Units has helped to spread the knowledge of venereal disease. There is less of the former "hush-hush" attitude and people are learning of its dangers and the need of seeking early treatment.

### MATERNAL AND CHILD HEALTH

Busy doctors are sending some of their patients in the lower income levels to the County Health Unit's "Well Child Conferences" and the pre-natal clinics where the staff can advise on minor things that contribute to maintenance of health, yet things about which the average persons do not make appointments with physicians.

### ILL CHILDREN SENT TO FAMILY PHYSICIAN

For those who do not understand well the workings or policies of the State Board of Health, it should be explained here that the policy of the County Health Unit is to send ill mothers and children to the family doctor. The baby clinics are set up for the specific purpose of "keeping well children well." Rather than taking away from the practice of the family physician, they add to his use for the first advice, both of the public health

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The author is indebted to Dr. E. F. Smith, County Health Officer since 1927 (and who, before that, was a practicing physician in Delaware) for background material used in this article. The comments of various other veteran staff doctors and nurses from the County Health Units are also gratefully acknowledged.

nurses and of the State Board of Health's many newspaper articles are: "If your child seems ill—call your doctor."

With the advent of hot weather and diarrhea among babies, mothers are warned by the Board via the state press and by "handouts" at clinics to see the doctor as soon as the baby begins to be ill—not to wait until he is very sick. In winter parents are warned in the same manner about the danger of measles' after-effects and that scarletina and scarlet fever are the same thing, and to see the family doctor when Johnnie or Susy first become ill.

### PRE-SCHOOL HEALTH EXAMINATIONS

Pre-school health examinations were begun by the County Health Units in 1931—examinations held in the spring or summer for children who are to enter school in the fall. Where physical defects are found, the parents are advised to seek the family doctor's assistance. The program is a defect-finding one only. Corrections are the job of the family physician but here, too, the County Health Units are doing a teaching job—that the health of 6-year-olds is important if their school careers are to begin successfully.

### THE PUBLIC HEALTH NURSE

The public health nurse in her dark blue uniform is a symbol of nursing knowledge and helpfulness to plain every-day folk all over the state. People know and trust her. A veteran nurse from Sussex expressed her creed as "trying to teach people a better way of living."

Doctors, rushed with a wartime load of patients, find it helpful to be able to call their County Health Unit and ask that a nurse demonstrate to a new mother how to bathe her baby, or teach a member of the household of an ill patient how to give adequate bedside care when a private nurse is not available or cannot be afforded in the home. The public health nurse will also demonstrate to a family how to isolate a tuberculosis patient in the home and the techniques to follow in helping to prevent the spread of the disease.

Aiding with the communicable disease control work, the nurses from the Unit placard the houses where there are such diseases as scarlet fever, diphtheria, smallpox or poliomyelitis. They investigate the source of the disease and, upon consultation with the county health officer, quarantine the people, or isolate them.

There are fewer secondary cases of typhoid fever because the sources of the disease are investigated by the County Health Unit staff and either the family doctor or the Unit personnel give typhoid immunization to the other members of the family.

The aggressive public health program for immunzation against diphtheria has cut down the deaths from this disease from 30 children in 1925 to 0 in 1942.

Physicians had been immunizing their private patients, but the big job of "selling the public" the idea of the importance of protection against diphtheria has been done by the County Health Units. This was the first job they tackled in the schools after the Units were opened in 1926 and, since that time, 44,582 children have been immunized by the staff in schools, at pre-school examinations, and at the clinics. Smallpox vaccinations have also been done in quantity by the staff at the above places. Where once people were frightened of "the needle," now, (though Delaware has no laws requiring these preventive measures), still most parents take it for granted that they are necessary for all children, and many mothers request the services from their family physician for their babies.

### UNIT KNOWS HEALTH CONDITIONS

It is the County Health Unit's job to know the health conditions within its sphere of activity. It is the connecting link. Take the matter of crippled children. Public health nurses, several years ago, made a survey to find the crippled children in their own communities. The list included children that they found through the doctors and the schools, as well as those found through the nurses' regular work. When the Nemours Foundation Hospital was completed, the County Health Units had already located the children needing care, and 50 children were signed up as patients the week that the hospital opened.

Whatever the County Health Units start in the way of health measures, the public in general accepts because, through the years, the

worth of their work has been proved to the people who come to them.

The dental hygiene program has been put over largely through the County Health Units. The dental hygienists from the Unit work in the schools, at the "Well Child Conferences," the pre-natal clinics and pre-school health examinations in an effort to teach how dental health affects general health and encourage people to work for both.

Nutrition classes, exhibits, and give-away literature—all are designed to help mothers visiting the Units learn more about foods and their relation to the health of themselves and of their families.

### Health Education

Exhibits, posters and pamphlets on a wide variety of health subjects are also on view for the public at the County Health Units in the efforts of the Division of Health Information to teach people that "Your Health Is In Your Hands."

The County Health Unit is the level where the public meets public health, a vital connecting link between the State Board of Health executive staff and the people. Not only is it a distributing agent for the clearly defined services offered by the Board, but it is a trouble-finding agency as well. At the bi-monthly state-wide staff meetings held in Dover, health difficulties or problems found in the various communities are offered to the assembly by the members and, if the problems fall within the realm of the Board's work, a means is sought for solving them. If this cannot be done, they are referred to the proper agency for handling the job, if there be one that can meet the difficulty.

It is also the State Board of Health and the County Health Unit's job to know national health conditions and give out "storm warnings" when epidemics threaten. With the spread of "polio" in some sections of the country, the staff is informed and prepared to answer questions of the public, and matters of policy are decided.

When, last winter, a person visiting in Delaware returned home and developed smallpox, the Board stocked smallpox vaccine in quantity and the Units furnished it to the private physicians to vaccinate their frightened patients. (The Board's laboratory at Dover has for years furnished free toxoid and vaccine to physicians.)

### The Unit A "Health Center"

The County Health Unit is, and should be, a center of health activity in the community. Not only does it house the regular clinics which the State Board of Health offers, but it furnishes space to allied clinics of other groups. Thus we find one with mental hygiene clinics run by a staff from State Hospital, and public health nurses of the Unit refer many of their patients who need psychiatric help to these clinics for assistance with their mental and emotional problems.

Nurses' Aide groups have free use of the County Health Unit building for their meetings and a number of them, in turn, give time to helping with the routine work of the clinics, thus saving nurses' valuable time.

Where were the Red Cross First Aid and Home Nursing classes held? Very often in the health department building. When a group of citizens wants to get together to discuss the housing situation or some other community problem of like nature and asks where they can have a free meeting place the answer may very well be "The Health Center."

Yes, the County Health Units of the State Board of Health, with the County Health Officer and nursing staff, are trying to help the doctor keep his community well, both in wartime and in peace.

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## THE NEWER KNOWLEDGE OF NUTRITION IN PREGNANCY

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Recent studies on the role of nutrition in pregnancy indicate that the concept of a parasitic fetus is outmoded. Burke[1] and her co-authors made observations on 216 women, under 30 years of age, studying the influence of prenatal diet upon fetal growth and development, as well as upon the course of pregnancy, labor, delivery and the puerperium. They report a statistically significant relationship between the mother's diet and the condition of the infant at birth and

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within the first two weeks of life. When the prenatal diet was poor to very poor, the infant's physical condition was poor. All the stillborn infants, all but one of the infants dying within a few days after birth, most of the infants having congenital defects, and all functionally immature infants were born to mothers taking very inadequate prenatal diets. In only one out of 216 cases was a child in poor physical condition born to a mother taking a good diet. Almost half the mothers on poor diets had toxemias, but no mother on a good or excellent diet had pre-eclampia. Furthermore, mothers whose diets were poor tended to have more difficult types of labor and more major complications at delivery despite the fact that they had, on the average, smaller infants than those born to women in the good or excellent diet group. (Detailed reports on four aspects of this study have appeared in the Journal of Pediatrics.)

### SUPPLEMENTATION OF PRENATAL DIETS

Ebbs, Tisdall and Scott[2] and Balfour[3] have contributed impressive evidence of the importance of an adequate diet during pregnancy. Ebbs and co-authors report a study on 380 women with records of poor diets and low incomes. They found that Canadian women receiving supplementary food and/or dietary advice had much better obstetrical records, less anemia, less toxemias, and fewer threatened miscarriages than an uninstructed, unsupplemented group. The only three infant deaths occurred in this latter group. The total cost of supplemental feeding was only twenty-five dollars for 4.7 months. Balfour reports an experiment on 11,618 pregnant English and Welsh women given food supplements and 8,095 pregnant women from the same areas receiving no supplements. The author concludes that there was a significant reduction in the combined stillbirth and mortality rate in the supplemented group, and amazingly enough, that beneficial results were due to 8 grams of yeast extract given to expectant mothers daily. This represents an increase in total thiamin, iron, riboflavin and niacin intake.

### NUTRITIVE REQUIREMENTS IN PREGNANCY

Ebbs[4] translates into daily servings of foods the recommendations of the Food and Nutrition Board of the National Research Council, adopted by the Council on Foods and Nutrition of the American Medical Association, as follows:

Milk, 40 ounces (2½ pints)
Cheese, 1 ounce
Butter, 2 ounces
Egg, 1 serving
Meat, 1 serving (liver once a week)
Potato, 1 serving
Yellow or green leafy vegetable, 1 serving
Orange juice, 3 ounces or Grapefruit juice, 4 ounces or Tomato juice, 7 ounces
Other fruits, 1 serving
Whole grain or enriched bread, 4 slices
Whole grain or restored cereal, 1 serving

Extra calories necessary would be provided in the other foods eaten in the daily diet according to individual needs and taste. A supplement of fish liver or its equivalent should be prescribed to provide 400 to 800 units of vitamin D.

Some investigators (Burke and co-authors[5] and Holmes[6]) are advocating high protein diets. Burke points out that infants tend to be shorter, lighter and to have lower rating for fitness when the maternal protein intake is below 75 grams daily in the latter part of pregnancy. Holmes compares two groups of 700 women each half of whom were primiparae, and half multiparae, one group receiving a high protein diet, the other a low one. The incidence of toxemia was half as high in both groups on low protein diets as in high protein ones; the incidence of prematurity was in the reverse direction. Bethell, Blecha and Van Sant[7] in checking nutritional status and hematotogic values of 484 pregnant women in a rural area found a 25.4% incidence of anemia. They report a positive correlation between macrocytic anemia and low protein as well as hypochromic anemia and deficient dietary iron.

### NEED FOR DIETARY INSTRUCTION

Ebbs[4] concludes from evidence presented that the pregnant and lactating woman re-

quires more calories, minerals, vitamins and proteins than the non-pregnant woman and in most cases will need dietary instruction. He points out that the importance of eating the protective foods is obvious and that apart from vitamin D, the requirements of other food elements can be met by food, provided the income is adequate. It must be remembered, however, that women need to be instructed in proper storage and preparation of food to retain the vitamin and mineral content. Obviously, there is little use in urging them to buy good food which loses most of its vitamins and minerals on its way to the table.

The increased dental decay during pregnancy is a matter of concern, and while good nutrition and dental care are not the whole answer, they play an important role in maintaining dental health.

Realizing that physicians are serving ever-increasing numbers of patients and that they rarely have the time to give as much individual instruction as they would like, the division of Maternal and Child Health will provide the following simply-written literature to any physician requesting them for distribution to his patients:

(1) A series of 9 simply written pre-natal letters, one for each month of natal life, explaining physical changes which are taking place, discussing diet, supplies for home delivery, etc. If the physician wishes, these will be mailed to the patient monthly.

(2) A diet for pregnant and nursing mothers supplying nutrients as recommended by the Council on Foods and Nutrition of the American Medical Association.

(3) A list of supplies needed for home delivery.

### CONCLUSION

There is a great deal of nutrition information available to the public now, much of it misleading. The physician can do much to correct misinformation in his daily practice and probably in no other spot will he find as fertile territory as in his prenatal patients. Macy[8] has said, "From conception to death, health is primarily dependent upon food and nutrition." Simply-written pre-natal letters, diet instruction sheets and other literature for distribution is available from the State Board of Health as an adjunct to the physicians' teaching.


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## PUBLIC HEALTH NURSING IN PREVENTION AND CONTROL OF TUBERCULOSIS


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Pulmonary tuberculosis continues to be a major public health problem. Continued and intensified application of control measures is necessary to reduce tuberculosis to a position of relative unimportance as a cause of death. Control depends upon general measures such as a prompt diagnosis, isolation of infectious patients, examination and supervision of those who may have been in contact with the disease, and adequate treatment for the sick. These measures cannot be successful without the cooperation of the public.

In order to bring about a further reduction in the incidence of tuberculosis, the public must be educated in methods of tuberculosis prevention. Medical agencies are largely responsible for public health education, and in the tuberculosis field, the public health nurse occupies an important position, since her work brings her in contact with the economic groups in which the disease occurs most frequently and in which instruction will be most profitable.

The nurse has the opportunity of discovering and referring to their physicians, persons who may have unrecognized tuberculosis or who have been exposed to known tuberculosis


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without subsequently receiving adequate medical supervision. She should be in a position to give patients intelligent advice regarding tuberculosis prevention and control.

As tuberculosis cases are reported to the State Board of Health, they are referred to the County Health Unit, where a complete roster of tuberculosis cases is kept. The public health nurse calls the physician of those patients under his care and obtains his permission to give any indicated nursing care and to assist with the follow-up of the patient's contacts. Nursing care is particularly important for those patients requiring bed care at home or while waiting for a bed in the sanatorium. The nurse may demonstrate to a member of the family how to give a bed bath, how to change the bed, the proper disposal of sputa, the care of dishes and linens; in other words, the care and isolation of the patient. Families welcome this kind of help from the nurse. Recently, a young girl who lived in an apartment with her husband, was referred to the clinic by her private physician. A diagnosis of pulmonary tuberculosis with positive sputum was made. When the private physician received the report, he called the county public health nurse and asked her to visit the patient. The girl's husband worked but was able to prepare her meals. There was no one else in the home. The nurse visited twice a week and gave the girl a bath, changed her bed and instructed both her and her husband as to the meaning of complete bed rest, diet, and isolation measures. In three weeks, the girl and her husband decided the sanatorium would be a better place for her to cure. They were very grateful for the help of the nurse. Because absolute bed rest is considered an essential part of treatment, skilled nursing care is very necessary to tuberculosis patients.

Hetherington and Eshleman have said: "When ever a patient is found to have pulmonary tuberculosis, an attempt should be made to determine the origin of the disease, that is, the source case, and to determine to whom the disease has been transmitted." "Case finding activities among the associates of tuberculosis patients are of paramount importance, since, because tuberculosis is a contagious disease, the majority of new cases occur in persons who have been closely associated with the sick." The public health nurse carrying the family of a tuberculosis case keeps a record of the next advised return to private physician or clinic, visits the family to persuade them of the necessity of the examination, sometimes assists with finding transportation, or in overcoming other obstacles which stand in the way of the trip to physician or clinic.

Many family problems are caused by tuberculosis. They may be economic because of the loss of the wage earner, or social because of domestic, child care or rehabilitation aspects. Many agencies, throughout the state, are available for various forms of assistance. The public health nurse works with these agencies every day and is in a position to help tuberculosis patients or families with their problems.

The State Board of Health's thirty (30) public health nurses serving throughout the state stand ready to help physicians secure proper care for the tuberculosis patient, prevent further infection of members of the household, and determine that prophylactic measures and suitable treatment are employed in the prevention of progression of disease in those already infected.

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## THE ROLE OF A MEDICAL SOCIAL WORKER IN THE DELAWARE STATE BOARD OF HEALTH

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Gradually during the last eight years a number of medical social workers have left their jobs in hospitals and accepted positions in public programs. They are now working in different divisions of State Boards of Health or Boards of Welfare, in Divisions of Vocational Rehabilitation, in programs for the Hard of Hearing and Blind, in UNRA, and so on. Despite the change in surroundings the functions of the medical social worker remains the same, namely to help people adjust to their illness or physical limi-

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tations so that they can lead a more satisfactory and productive life.

In the Delaware State Board of Health the medical social worker has been assigned to the Division of Maternal and Child Health. This means that her services are divided between the well child conferences, the services for crippled children, and the EMIC program. The worker may be consulted about other medical social situations which concern the public health nurses. The cases are referred to the worker by the doctors, the public health nurses, social agencies and laymen. The medical social worker acts as a consultant to the individual referring the case and only does a limited amount of direct case work. The worker plans to be available to each Health Unit every week for conferences about cases. At this time worker and the nurses attempt to discover how to help the family in question to help themselves. We always try to remember to do preventive work as well and to keep the needs of the community in mind. The worker has had conferences with social agencies to develop a closer working arrangement as well as to discuss specific cases. When the public health nurses show unmet needs in a community, an effort is made to see what the community wants to do.

One general question which faces all of us in our department is how should we function when families seem unable to change their way of life to a more sensible, healthy one? It is true that we have certain real limitations and must accept them, as we cannot hope to have every family adopt good public health practices. However, if enough parents react this way to whom should we report the matter? Is it something that towns would be interested in knowing about? What makes these individuals appear indifferent and adopt a fatalistic attitude towards life?

Then we do have a number of parents who for a variety of reasons do not cooperate with the doctors. In these instances the public health nurses, doctors, and worker try to figure out what is behind this attitude. Is it due to unnecessary fears, a need for reassurance, or the attitude of the community? In several instances, the parents have changed their minds and accepted treatment when we have allowed them to move at their own pace. One mother told me the other day that it is her plan now, as she has had time to think the matter over and weigh its assets and liabilities.

At the moment worker wonders how far our department will be able to go to help an older girl maintain her good adjustment to her limitations. She has cerebral palsy, athetoid type, walks with difficulty, and her arms do move about awkwardly. This girl and her parents have recently moved to Delaware from a southwestern state, which because of its size can support a school for crippled children. This girl went there for the past three years and finished the first six grades in that time. She wants to learn to be a secretary and is anxious to help others. The children in the neighborhood accept her with reservations and call her crippled. Is she a fair responsibility for a public school, when they are pressed unduly because of the war? Is she emotionally ready to attend a regular school or does she need to be with other physically limited children?

In another group there are five children whom the public health nurses have referred to us because they are chronically ill and it is difficult to care for them at home. The mothers are becoming exhausted physically and mentally and this does affect the other children in the family. What can we do to lessen the strain of such a situation? Should these children be cared for at home or away from home? If they are home do they need a visiting teacher or an occupational therapist?

We have been working cooperatively with the State Board of Education as twenty-three of the children who are being followed by our crippled children's services are unable to attend school. One of the schools on the outskirts of Wilmington has been able to pay two of their teachers to give instruction to one eleven-year-old boy. As a result of this instruction, the once rather apathetic boy is suddenly interested in the world about him and wants to do things. He is anxious to join the Boy Scouts. His parents are delighted, in fact their sustained cooperation is partly responsible for the success of this

teaching. Here, again we ask the question how can we be of most service to these children, their families, our department, and the state? What kinds of resources do these children need and how do the citizens of the state feel this problem should be met?

Delaware is a homogenous state with a real tradition for being able to meet its own problems in a constructive way, and we feel sure that Delaware will continue to maintain this democratic mode of action.

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## OBITUARY

### CHARLES M. HANBY, M. D.

Dr. Charles M. Hanby, 69 years old, of Wilmington, died on July 27, 1944, in the Delaware Hospital, from a heart condition.

Dr. Hanby was born in Wilmington, a son of the late James Bayard and Martha Kendall Hanby. He attended the Wilmington public schools and was graduated from the Southern Homeopathic Medical College, Baltimore, in 1901. He practiced medicine in Cambridge, Md., after graduation until 1919 when he returned to Wilmington, and continued his practice until he retired in 1932.

In May, Dr. Hanby was reappointed a member of the city board of health by Mayor Albert W. James. He served as president of the board about 20 years ago.

Dr. Hanby had served as a member of the board of directors of the Alfred I. duPont Institute of the Nemours Foundation since its establishment, and he was on the staff of the Memorial and the Delaware Hospitals. He was a member of the Medical Society of Delaware, and of the American Medical Association and of the New Castle County Medical Society.

He was also a member of Westminster Church, and of Lafayette Lodge, A. F. and A. M., and of the Delaware Consistory.

Surviving Dr. Hanby, are a daughter, Mrs. John M. Kyle, Jersey City, N. J.; a son, Charles M. Hanby, Jr., Wilmington; a granddaughter, Sarah Platt Hanby, and a brother, Frank Hanby, Riverdale, Md. His wife, Mrs. Sarah Small Hanby, died two years ago.

The funeral services were held July 29th, in the Chapel of the Wilmington and Brandywine Cemetery, the Rev. Dr. Charles L. Candee, pastor emeritus of Westminster Presbyterian Church, officiating. Interment was in that cemetery.

# *Editorial*

**DELAWARE STATE MEDICAL JOURNAL**

*Owned and published by the Medical Society of Delaware, a scientific society, non-profit corporation. Issued about the twentieth of each month under the supervision of the Committee on Publication.*

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VOL. 16 AUGUST, 1944 No. 8

Herewith appears, for the fifteenth successive year, the State Board of Health Number of THE JOURNAL. Like its predecessors, it contains a fair cross-section of the activities of this Board; the thirteen articles are timely and well-written. From the standpoint of the general public the paper by the State Sanitary Engineer, proposing over $23,000,000 worth of post-war water, sewerage and building projects, commands special consideration. The fourteenth article, by the State Veterinarian on Delaware's important broiler industry will appear in THE JOURNAL next month.

Again we take pleasure in congratulating Dr. Cameron and his staff upon such an excellent presentation, and for his and their efforts, our sincere thanks.

# 1789—MEDICAL SOCIETY OF DELAWARE—1944

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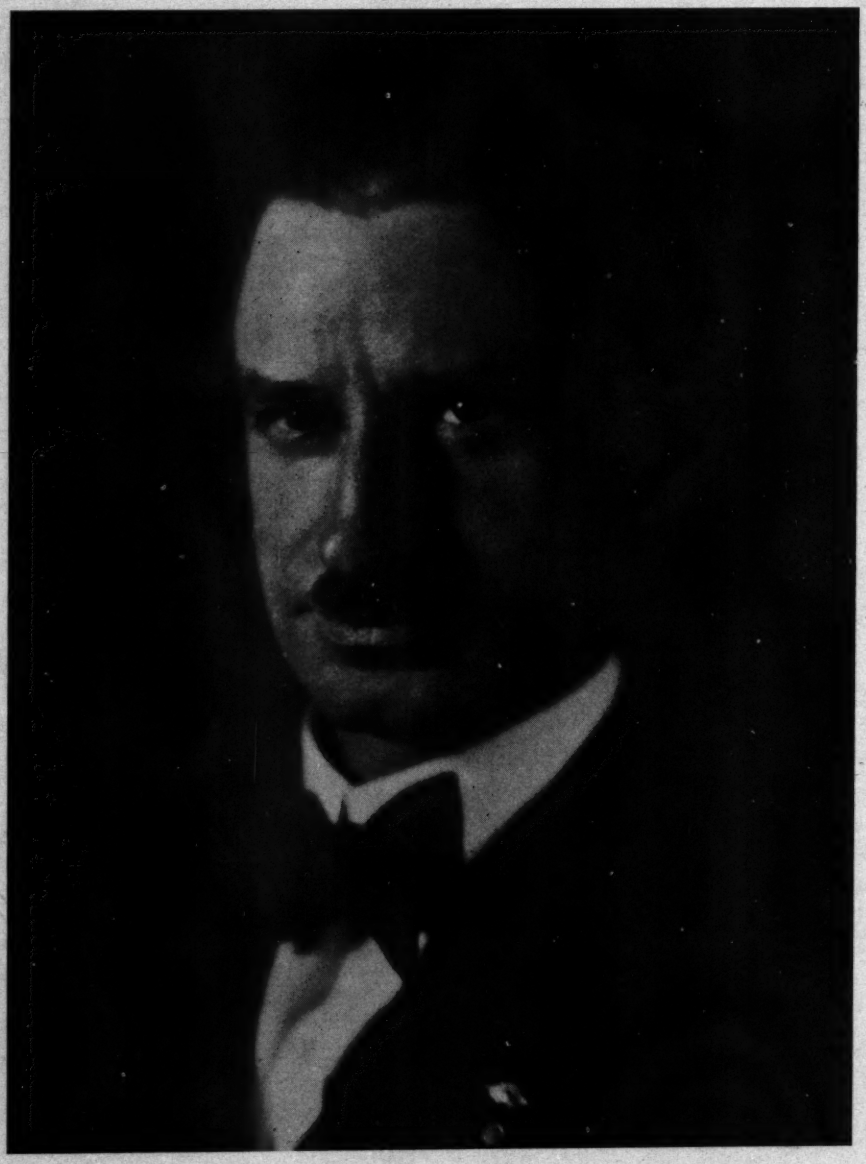

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